

NASA/TM-2002-211955



Evaluating the Effectiveness of NASA's Destination Tomorrow™ 2000–2001 Program

Thomas E. Pinelli
Langley Research Center, Hampton, Virginia

Jeannine Perry
Continental Research, Norfolk, Virginia

November 2002

The NASA STI Program Office . . . in Profile

Since its founding, NASA has been dedicated to the advancement of aeronautics and space science. The NASA Scientific and Technical Information (STI) Program Office plays a key part in helping NASA maintain this important role.

The NASA STI Program Office is operated by Langley Research Center, the lead center for NASA's scientific and technical information. The NASA STI Program Office provides access to the NASA STI Database, the largest collection of aeronautical and space science STI in the world. The Program Office is also NASA's institutional mechanism for disseminating the results of its research and development activities. These results are published by NASA in the NASA STI Report Series, which includes the following report types:

- **TECHNICAL PUBLICATION.** Reports of completed research or a major significant phase of research that present the results of NASA programs and include extensive data or theoretical analysis. Includes compilations of significant scientific and technical data and information deemed to be of continuing reference value. NASA counterpart of peer-reviewed formal professional papers, but having less stringent limitations on manuscript length and extent of graphic presentations.
- **TECHNICAL MEMORANDUM.** Scientific and technical findings that are preliminary or of specialized interest, e.g., quick release reports, working papers, and bibliographies that contain minimal annotation. Does not contain extensive analysis.
- **CONTRACTOR REPORT.** Scientific and technical findings by NASA-sponsored contractors and grantees.
- **CONFERENCE PUBLICATION.** Collected papers from scientific and technical conferences, symposia, seminars, or other meetings sponsored or co-sponsored by NASA.
- **SPECIAL PUBLICATION.** Scientific, technical, or historical information from NASA programs, projects, and missions, often concerned with subjects having substantial public interest.

TECHNICAL TRANSLATION. English-language translations of foreign scientific and technical material pertinent to NASA's mission.

Specialized services that complement the STI Program Office's diverse offerings include creating custom thesauri, building customized databases, organizing and publishing research results . . . even providing videos.

For more information about the NASA STI Program Office, see the following:

- Access the NASA STI Program Home Page at <http://www.sti.nasa.gov>
- Email your question via the Internet to help@sti.nasa.gov
- Fax your question to the NASA STI Help Desk at (301) 621-0134
- Telephone the NASA STI Help Desk at (301) 621-0390
- Write to:
NASA STI Help Desk
NASA Center for AeroSpace Information
7121 Standard Drive
Hanover, MD 21076-1320

NASA/TM-2002-211955



Evaluating the Effectiveness of NASA's Destination Tomorrow™ 2000–2001 Program

Thomas E. Pinelli
Langley Research Center, Hampton, Virginia

Jeannine Perry
Continental Research, Norfolk, Virginia

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23681-2199

November 2002

Available from:

NASA Center for AeroSpace Information (CASI)
7121 Standard Drive
Hanover, MD 21076-1320
(301) 621-0390

National Technical Information Service (NTIS)
5285 Port Royal Road
Springfield, VA 22161-2171
(703) 605-6000

Abstract

NASA's Destination Tomorrow™ series consists of 30-minute educational television programs that focus on NASA research, past, present, and future and are designed for educators, parents, and adult (lifelong) learners. Programs in this award-winning series follow a magazine style format with segments ranging from 3–5 minutes to 6–8 minutes. An associated web site provides summaries of stories and links to related program material. The development of the programs is based on educational theory, principles, and research as they pertain to how adults learn and apply knowledge. The five programs in the 2000–2001 season were produced in English and dubbed in Spanish. Telephone interviews with managers of cable access television stations were conducted in January 2002. NASA's Destination Tomorrow™ interviewees reported that (1) from a programming standpoint, the most appealing aspects of the series are its production quality and educational value, (2) programs in the series are "better than average" when compared to other education programming, (3) the programs are very credible, (4) the programs are successful in educating people about what NASA does, and (5) the programs have been "very well received" by their audiences.

Introduction

The NASA Langley Research Center's Office of Education (OEd) has the primary responsibility within the Aeronautics Enterprise (Code R) for distance learning and within the Education Division (Code FE) for the use of instructional technology to integrate mathematics, science, and technology into the curriculum. Through its Center for Distance Learning, the OEd has developed a suite of five (5) distance learning programs. Collectively, the goals of these programs include (1) enhancing and enriching the teaching and learning of mathematics, science, and technology; (2) increasing scientific and technological literacy; and (3) communicating the results of NASA discovery, exploration, and innovation. Information about the NASA Center for Distance Learning is available from the following web site <http://dlcenter.larc.nasa.gov>.

Evaluation is critical to the success of any program. NASA's Destination Tomorrow™ is broadcast internationally on 598 cable and satellite TV stations to a potential audience of 230 million viewers. To determine the effectiveness, credibility, and validity of NASA's Destination Tomorrow™, 400 telephone interviews with managers of cable access television stations were conducted in January 2002. The interviews were designed to determine (1) information about the programs, including the number of times the programs aired and (2) information regarding the quality of the programs, including how NASA's Destination Tomorrow™ compared to other (similar) educational programming. Continental Research Associates, a Norfolk, Virginia-based marketing research firm, conducted the interviews. About 64 percent of the managers interviewed were male; slightly more than 50 percent of the stations were located in the eastern United States; and the stations surveyed had an average (mean) audience of 165,697 viewers. This report contains the results of the telephone interviews used to determine the effectiveness of the 2000-2001 season of Destination Tomorrow™.

Overview of NASA's Destination Tomorrow™

NASA's Destination Tomorrow™ series consists of 30-minute educational television programs that focus on NASA research, past, present, and future and are designed for educators, parents, and adult

(lifelong) learners. The programs in this award-winning series have a magazine style format with segments ranging from 3–5 minutes to 6–8 minutes. The development of each program is based on educational theory, principles, and research as they pertain to how adults learn and apply knowledge. Programs in the series are designed (1) to create and heighten adult interest in mathematics, science, technology, and NASA; (2) to increase the scientific and information technology literacy of adults; (3) to improve the literacy of adults who do not use English as their primary language; and (4) to serve as a mechanism for parents and caregivers to become involved in the education of children and young adults. An associated web site provides summaries of stories and links to related program material. Funding for the production of NASA's Destination Tomorrow™ is made possible by contributions from NASA Langley's research competencies and the NASA Aeronautics Education Coordinating Committee (AECC).

URL: <http://destination.larc.nasa.gov>

Target Audience: grades 9–adult learners

Access: PBS, ITV, and Cable

NASA CORE AND ERCs

Registration: none required

Rights: not copyrighted, off-air
rights granted in perpetuity

Language: English and Spanish

Rights and Responsibilities

NASA's Destination Tomorrow™ is a work of the United States Government and, therefore, is not subject to copyright. No fees or licensing agreements are required to use the programs, in whole or in part, in this series. Off-air rights are granted in perpetuity. NASA grants unlimited rights in perpetuity for duplication, dubbing, broadcasting, cable casting, and web casting, provided the material is used for educational purposes and NASA is credited for its production. Use of NASA's Destination Tomorrow™, either in whole or in part, for commercial purposes requires the expressed written consent of the NASA Center for Distance Learning.

Availability

For a minimal fee, VHS copies of NASA's Destination Tomorrow™ can be obtained from the NASA Central Operation of Resources for Educators (CORE). Video copies can also be obtained from the NASA Educator Resource Centers (ERC).

NASA CORE

15182 State Route 58 South

Oberlin, OH 44074-9799

Phone: 440-775-1400

Fax: 440-775-1460

Email: nasaco@lecca.esu.k12.oh.us

URL: <http://CORE.spacelink.nasa.gov>

Methodology

The Educational Technology and Distance Learning Officer at NASA Langley Research Center in Hampton, Virginia, commissioned this study. The purpose of the study was to see how public access cable TV station managers who requested and received the Destination Tomorrow™ videotapes in 2001 felt about the series. Continental Research Associates, Inc., a Norfolk-based marketing research firm, conducted the study. Surveys were collected from January 16 through February 21, 2002.

Continental Research developed the survey instrument in consultation with representatives from NASA Langley's Educational Technology and Distance Learning office. The survey was pretested on a subsample of respondents by senior staff members. This pretest helped to identify any problems with the questionnaire—wording/vocabulary, sequencing, or layout. The final survey took approximately 10 minutes to complete. A copy of the questionnaire is included in appendix A of this report. NASA Langley provided the sample frame in an Excel spreadsheet format. The original list contained 537 records from across the United States, and a few were from other countries. In all, 400 interviews were completed.

All calls were made from the Continental Research central telephone facility in Norfolk, Virginia. Professional staff interviewers administered the surveys. Each interviewer had extensive training and several years of experience conducting executive level surveys prior to working on this project. Prior to the data collection, a briefing session was held with the interviewing team to discuss instructions for using the questionnaire and issues relating to the project. Each interviewer participated in several role-playing exercises with the survey. These exercises provided an opportunity to discuss techniques for the administration of the survey, to role-play various types of probes, and to practice the proper pace for reading the preformatted questionnaire verbatim.

The data collection was completed over several weeks. Telephone contacts were made Monday through Friday between the hours of 8:30 a.m. and 9:00 p.m. local time. Interviewers attempted to reach each person selected for inclusion in the study 10 times on different days and at different times. (Several foreign stations were also contacted by e-mail.) Survey responses were entered directly into the computer by using Computer-Assisted Telephone Interviewing (CATI) technology, and all open-ended answers were recorded verbatim. The supervisor, who was present at all times, electronically monitored the interviewers on the computer network. The supervisor dual-recorded a portion of each person's work to ensure consistency in the recording of all answers. Over 38 percent of all calls were fully monitored, and an additional 25 percent were partially monitored. This monitoring exceeds the 5 percent industry standard for validation.

After each shift, a debriefing session was held to discuss the survey's progress and how people were responding. While these debriefings provide only anecdotal information, they are useful when interpreting the tabulated findings. Debriefings also helped identify whether current events could be affecting the survey results, warranting a delay of a few days. After the surveys were administered, the open-ended survey responses were carefully read, and similar responses were grouped into categories. Each category was assigned a numerical code, entered into the computer, and verified for 100 percent accuracy. A detailed computer program was then written to tabulate the findings. An analysis was performed using SPSS (Statistical Package for the Social Sciences). The results are displayed on the following pages. Survey demographics are included in appendix B.

Margin of Error

The term *margin of error* refers to the difference between the survey's results and what one would find if a complete census of public access cable TV stations was conducted. The figure expressed is the **maximum** amount a percentage in this report might vary from a full census.

With a sample size of 400 out of 537, we are 95 percent certain that **any** percentage in this report would be within ± 4.9 percentage points. That ± 4.9 percent error margin uses a worst-case scenario based on a 50 percent figure found anywhere in the report. The following table displays the margin of error for

any percentage in this report. Notice that the margin of error is the same for 90 percent versus 10 percent or for 55 percent versus 45 percent:

If the reported percentage =	The margin of error =
99	±0.98 percent
95	±2.14
90	±2.94
85	±3.50
80	±3.92
75	±4.24
70	±4.49
65	±4.67
60	±4.80
55	±4.88
----- 50 - highest margin of error - -----	±4.90
45	±4.88
40	±4.80
35	±4.67
30	±4.49
25	±4.24
20	±3.92
15	±3.50
10	±2.94
5	±2.14
1	±0.98

Breakout of Telephone Contacts

Number of completed interviews.....	400
Respondent not able to be reached after multiple attempts	72
Contacted by e-mail—never heard from	5
Nonworking phone number—replacement number not available.....	23
Incomplete phone number—replacement number not available	9
Duplicate station.....	14
Refused to participate.....	12
Removed by client—never called.....	<u>2</u>
Total number of records on original list.....	537

Highlights

- Of the 400 station managers surveyed, 65.8 percent said they received all five Destination Tomorrow™ videotapes.
- Of the 400, 50.5 percent said they aired all five programs station(s) in 2001.
- Data from the 335 stations that aired the programs:

- 16.05 = average number of times the first program received was aired in 2001
 - 15.90 = average number of times the second program received was aired
 - 15.69 = average number of times the third program received was aired
 - 15.61 = average number of times the fourth program received was aired
 - 13.02 = average number of times the fifth program received was aired
 - 54.6 percent aired them in the morning
 - 63.6 percent aired them in the afternoon
 - 69.0 percent aired them in the evening
 - 19.7 percent aired them at night
- The most important factor affecting the decision to select programs to air

Top three answers (n = 400)

- 23.5 percent—educational value
 - 22.3 percent—if program is of community interest
 - 15.0 percent—if content fits station’s mission
- Most appealing factor about NASA’s Destination Tomorrow™ programs from a programming standpoint

Top three answers (n = 400)

- 23.5 percent—production quality
 - 22.3 percent—educational value
 - 15.0 percent—interesting content
- 73.5 percent (of 400) said that the quality of the NASA Destination Tomorrow™ series is “better than average” when compared to other educational programming their station uses.
 - 90.5 percent (of 400) thought the Destination Tomorrow™ shows have been successful in educating people about what NASA does.
 - 64.8 percent of the 335 stations that aired the programs said the Destination Tomorrow™ programs have been “very well-received” by their audience.
 - 80.0 percent (of 400) believed the information provided by NASA Langley in the programs is “very credible.”
 - 86.3 percent (of 400) personally watched some of the programs.
 - 3.1 = average number of programs seen by station managers (n = 400).
 - 57.1 percent of the 382 station managers who received the programs said they watched all (or part) of every program they received.
 - 77.7 percent of the 345 station managers who saw the programs thought they were “very interesting.”

- 82.6 percent of the 345 station managers said the programs were “very educational.”
- What NASA Langley should do to make the programs more useful:

Top three answers (n = 400)

- 46.8 percent—Do nothing, they are fine as is.
 - 21.5 percent—Produce more programs.
 - 6.3 percent—Tell us when to expect them so we can plan.
- 37.8 percent (of 400) recalled visiting the Destination Tomorrow™ web site.
 - Of the 151 people who visited the web site, 90.1 percent said it was fine as is.
 - 6.93 = average number of years at that particular cable TV station.
 - 45.8 percent are in production; 35.5 percent are in management; 10.8 percent are in operations; and 8.0 percent are in marketing/outreach.
 - 86.8 percent (of 400) personally make decisions about what will be included in the programming lineup.
 - 63.8 percent are male; 36.3 percent are female.
 - 94.5 percent are public access stations; 5.5 percent are public broadcasting stations.
 - 71.3 percent received the tapes in SVHS format; 14.0 percent received VHS; 13.0 percent received Beta; 1.8 percent used 3/4-inch format.
 - Based on time zones, 56.0 percent of the stations are located in the Eastern region of the United States; 21.0 percent are from the Central region; 14.8 percent are from the Pacific region; 7.8 percent are from the Mountain region; 0.5 percent are from other countries.

Survey Results

Survey results presented in this section of the report are based on the number and the percentage of responses to the actual survey questions.

- 1. In 2001, there were five different Destination Tomorrow™ programs that were made available to participating stations. Do you think you received all five programs?**

	<u>Number</u>	<u>Percentage</u>
Yes	263	65.8
No	<u>137</u>	34.3
	400	

2. How many Destination Tomorrow™ programs did you receive?

	<u>Number</u>	<u>Percentage</u>
None	18	4.5
One program	23	5.8
Two programs	19	4.8
Three programs	37	9.3
Four programs	40	10.0
All five programs	<u>263</u>	65.8
	400	

Mean (Average) = 4.1 programs received

3. When did you receive the first 2001 program?

	<u>Number</u>	<u>Percentage</u>
January 2001	30	7.5
February 2001	65	16.3
March 2001	62	15.5
April 2001	35	8.8
May 2001	24	6.0
June 2001	25	6.3
July 2001	22	5.5
August 2001	40	10.0
September 2001	30	7.5
October 2001	16	4.0
November 2001	15	3.8
December 2001	18	4.5
Didn't receive any shows	<u>18</u>	4.5
	400	

4. Of the five possible programs, how many were aired on your station(s)?

	<u>Number</u>	<u>Percentage</u>
None were aired	47	11.8
One program	17	4.3
Two programs	25	6.3
Three programs	40	10.0
Four programs	51	12.8
All five programs	202	50.5
Didn't receive any programs	<u>18</u>	4.5
	400	

Mean (Average) = 3.7 programs aired

5. (Of those who aired the programs...) Approximately how many times did the first program you received air on your station in 2001? (Data grouped for presentation purposes.)

<u>Times Aired</u>	<u>Number</u>	<u>Percentage</u>
1	15	4.5
2	23	6.9
3	30	9.0
4	36	10.7
5	22	6.6
6 to 10	90	26.9
11 to 15	43	12.8
16 to 20	24	7.2
21 to 30	19	5.7
31 to 40	12	3.6
Over 40	<u>21</u>	6.3
	335	

Averages*

Mean = 16.05 times Median = 8.00 times

NOTE: Sixty-five people are not included in this table because 18 said they didn't receive any programs and 47 said they have received programs but haven't aired them.

*Based on nongrouped data.

6. (Of those who aired two or more programs...) Approximately how many times did the second program air on your station in 2001? (Data grouped for presentation purposes.)

<u>Times Aired</u>	<u>Number</u>	<u>Percentage</u>
1	15	4.7
2	21	6.6
3	28	8.8
4	33	10.4
5	17	5.3
6 to 10	91	28.6
11 to 15	39	12.3
16 to 20	22	6.9
21 to 30	21	6.6
31 to 40	11	3.5
Over 40	<u>20</u>	<u>6.3</u>
	318	100.0

Averages*

Mean = 15.90 times Median = 8.00 times

NOTE: Eighty-two people are not included in this table because 17 said they only received one program; 18 said they didn't receive any programs; and 47 said they have received programs but haven't aired them.

*Based on nongrouped data.

7. (Of those who aired three or more programs...) Approximately how many times did the third program air on your station in 2001? (Data grouped for presentation purposes.)

<u>Times Aired</u>	<u>Number</u>	<u>Percentage</u>
1	14	4.8
2	16	5.5
3	26	8.9
4	33	11.3
5	16	5.5
6 to 10	86	29.4
11 to 15	32	10.9
16 to 20	21	7.2
21 to 30	19	6.5
31 to 40	10	3.4
Over 40	<u>20</u>	6.8
	293	

Averages*

Mean = 15.69 times Median = 8.00 times

NOTE: One hundred seven people are not included in this table because 17 said they only received one program; 25 said they only received two programs; 18 said they didn't receive any programs; and 47 said they have received programs but haven't aired them.

*Based on nongrouped data.

8. (Of those who aired four or more programs...) Approximately how many times did the fourth program air on your station in 2001? (Data grouped for presentation purposes.)

<u>Times Aired</u>	<u>Number</u>	<u>Percentage</u>
1	8	3.2
2	20	7.9
3	23	9.1
4	25	9.9
5	16	6.3
6 to 10	72	28.5
11 to 15	33	13.0
16 to 20	15	5.9
21 to 30	14	5.5
31 to 40	8	3.2
Over 40	<u>19</u>	<u>7.5</u>
	253	100.0

Averages*

Mean = 15.61 times Median = 8.00 times

NOTE: One hundred forty-seven people are not included in this table because 17 said they only received one program; 25 said they only received two programs; 40 said they only received three programs; 18 said they didn't receive any programs; and 47 said they have received programs but haven't aired them.

*Based on nongrouped data.

9. (Of those who aired all five programs...) Approximately how many times did the fifth program air on your station in 2001? (Data grouped for presentation purposes.)

<u>Times Aired</u>	<u>Number</u>	<u>Percentage</u>
1	10	5.0
2	16	7.9
3	15	7.4
4	23	11.4
5	17	8.4
6 to 10	59	29.2
11 to 15	23	11.4
16 to 20	15	7.4
21 to 30	7	3.5
31 to 40	6	3.0
Over 40	<u>11</u>	<u>5.4</u>
	202	100.0

Averages*

Mean = 13.02 times

Median = 8.00 times

NOTE: One hundred ninety-eight people are not included in this table because 17 said they only received one program; 25 said they only received two programs; 40 said they only received three programs; 51 said they only received four programs; 18 said they didn't receive any programs; and 47 said they have received programs but haven't aired them.

*Based on nongrouped data.

10. (Of those who aired the programs...) Were the Destination Tomorrow™ programs generally aired in the morning, afternoon, evening, at night, or at some combination of times?

<u>Program Time</u>	<u>Number</u>	<u>Percentage</u>
Evening	61	18.2
Morning, afternoon, and evening	50	14.9
Afternoon and evening	43	12.8
Morning, afternoon, evening, and night	39	11.6
Afternoon	36	10.7
Morning and evening	31	9.3
Morning and afternoon	31	9.3
Morning	17	5.1
Morning, afternoon, and night	8	2.4
Afternoon and night	6	1.8
Morning, evening, and night	4	1.2
Night	3	0.9
Evening and night	3	0.9
Morning and night	<u>3</u>	<u>0.9</u>
	335	100.0

NOTE: Sixty-five people are not included in this table because 18 said they didn't receive any programs and 47 said they have received programs but haven't aired them.

Of the 335 stations who aired the programs, 183 (54.6 percent) aired them in the morning; 213 (63.6 percent) aired them in the afternoon; 231 (69.0 percent) aired them in the evening; and 66 (19.7 percent) aired them at night.

11. What is the single most important thing that affects your decision to select a program to air on your station?

<u>Single Most Important Thing</u>	<u>Number</u>	<u>Percentage</u>
I look for educational value	94	23.5
If it is of community interest	89	22.3
If the content fits in our mission	60	15.0
If it has good production quality	41	10.3
If it is free	29	7.3
I look for interesting content	23	5.8
If it is produced by a government source/NASA	21	5.3
If it has broad appeal (all ages)	12	3.0
If we have a community sponsor	9	2.3
If the content fits our curriculum	6	1.5
If the content is current/up to date	6	1.5
If it is good for filler	3	0.8
I look for content that is science-oriented	3	0.8
If it is a 30-minute format	2	0.5
If it is visually appealing	1	0.3
I don't select programs	<u>1</u>	0.3
	400	

12. From a programming standpoint, what appeals to you most about the Destination Tomorrow™ programs?

<u>Most Appealing Aspect of Program</u>	<u>Number</u>	<u>Percentage</u>
The production quality	94	23.5
The educational value	60	15.0
The interesting content	53	13.3
They have broad appeal (all ages)	34	8.5
It is produced by a government source/NASA	34	8.5
The content is science-oriented	32	8.0
The content is current/up to date	18	4.5
It has fast-paced segments	16	4.0
It is visually appealing	8	2.0
It has a 30-minute format	6	1.5
It covers multiple topics	6	1.5
It is free	5	1.3
The content fits our curriculum	3	0.8
It is of community interest	2	0.5
It is good for filler	2	0.5
The content fits in our mission	1	0.3
I didn't really like them	1	0.3
I don't know	<u>25</u>	6.3
	400	

13. Compared to other educational programming your station uses, is the quality of the Destination Tomorrow™ series Better Than Average, About Average, or Worse Than Average?

<u>Rating</u>	<u>Number</u>	<u>Percentage</u>
Better than average	294	73.5
About average	71	17.8
Worse than average	1	0.3
I'm unable to judge	<u>34</u>	<u>8.5</u>
	400	

14. One goal of NASA's Destination Tomorrow™ is to educate people about what NASA does. Do you think these programs have been successful in that regard?

<u>Does Program Educate People About What NASA Does?</u>	<u>Number</u>	<u>Percentage</u>
Yes	362	90.5
No	0	0.0
I'm unable to judge	<u>38</u>	<u>9.5</u>
	400	100.0

15. (Of those who aired the programs...) Have the Destination Tomorrow™ programs been Very, Somewhat, or Not Well-Received by your audience?

<u>Reception of Programs</u>	<u>Number</u>	<u>Percentage</u>
Very well-received	217	64.8
Somewhat well-received	73	21.8
Not well-received	0	0.0
Don't know	<u>45</u>	<u>13.4</u>
	335	100.0

NOTE: Sixty-five people are not included in this table because 18 said they didn't receive any programs and 47 said they have received programs but haven't aired them.

16. In your opinion, is the information provided by NASA Langley in the Destination Tomorrow™ programs Very Credible, Somewhat Credible, or Not Credible?

<u>Program Credibility</u>	<u>Number</u>	<u>Percentage</u>
Very credible	320	80.0
Somewhat credible	48	12.0
Not credible	0	0.0
I'm unable to judge	<u>32</u>	<u>8.0</u>
	400	100.0

17. Have you personally watched all (or part) of any of the NASA Langley Destination Tomorrow™ programs?

<u>Did You Watch Programs?</u>	<u>Number</u>	<u>Percentage</u>
Yes	345	86.3
No	<u>55</u>	<u>13.8</u>
	400	

18. How many of the five programs produced in 2001 might you have seen at least part of?

<u>How Many Programs Watched?</u>	<u>Number</u>	<u>Percentage</u>
Haven't seen any programs	55	13.8
One program	40	10.0
Two programs	61	15.3
Three programs	55	13.8
Four programs	43	10.8
Five programs	<u>146</u>	<u>36.5</u>
	400	

Mean (Average) = 3.1 programs seen

NOTE: Two people saw Destination Tomorrow™ programs at their prior workplace.

19. Percentage of the Programs Received That Were Watched by Station Managers*

<u>Station Managers Watching Programs</u>	<u>Number</u>	<u>Percentage</u>
Watched 100 percent (all) of the programs they received	218	57.1
Watched 80 percent of the programs they received	19	5.0
Watched 75 percent of the programs they received	3	0.8
Watched 67 percent of the programs they received	7	1.8
Watched 60 percent of the programs they received	27	7.1
Watched 50 percent of the programs they received	9	2.4
Watched 40 percent of the programs they received	33	8.6
Watched 33 percent of the programs they received	4	1.0
Watched 25 percent of the programs they received	2	0.5
Watched 20 percent of the programs they received	21	5.5
Watched 0 percent (none) of the programs they received	<u>39</u>	<u>10.2</u>
	382	100.0

NOTE: Eighteen people are not included in this table because they said they didn't receive any programs.

*This table was computer generated.

20. (Of those who have seen the programs...) In your opinion, have the Destination Tomorrow™ programs been Very Interesting, Somewhat Interesting, or Not Interesting?

<u>Program Evaluation</u>	<u>Number</u>	<u>Percentage</u>
Very interesting	268	77.7
Somewhat interesting	75	21.7
Not interesting	<u>2</u>	<u>0.6</u>
	345	100.0

NOTE: Fifty-five people are not included in this table because they said they haven't seen any of the programs.

21. (Of those who have seen the programs...) In your opinion, have the Destination Tomorrow™ programs been Very Educational, Somewhat Educational, or Not Educational?

<u>Educational Level of Programs</u>	<u>Number</u>	<u>Percentage</u>
Very educational	285	82.6
Somewhat educational	60	17.4
Not educational	<u>0</u>	<u>0.0</u>
	345	100.0

NOTE: Fifty-five people are not included in this table because they said they haven't seen any of the programs.

22. Is there anything NASA Langley should do to make the programs more useful to you?

<u>Program Improvement</u>	<u>Number</u>	<u>Percentage</u>
No, they are fine as is	187	46.8
Produce more programs	86	21.5
Tell us when to expect them so we can plan	25	6.3
Send them sooner	22	5.5
Send supporting 30-second public service announcements (PSAs) for me to show	8	2.0
Create supplemental materials I can order	7	1.8
Make them more geared toward children	6	1.5
Keep them current	4	1.0
Make tapes available in DVC Pro format	4	1.0
Make tapes available in 3/4 inch format	3	0.8
Make tapes available in Spanish	3	0.8
Make tapes available in a digital format	3	0.8
Do all 30 minutes on one topic to increase depth	3	0.8
Put a countdown up front to cue up material	2	0.5
The host is too stylish	2	0.5
Make tapes available in various formats	2	0.5
Make tapes available in DV format	2	0.5
Make tapes available in Beta SP format	2	0.5
Make the programs a full 30 minutes	1	0.3
Add more racial diversity in the programs	1	0.3
Contact users personally to discuss their needs	1	0.3
Title each program separately	1	0.3
I need the shows to correlate closely with QCCs	1	0.3
I would like to link relevancy of shows to local audience	1	0.3
Improve tape copy quality	1	0.3
Include NASA Glenn in programs	1	0.3
The female host is not credible due to her style	1	0.3
Put two shows on each tape	1	0.3
Improve web site collateral materials	1	0.3
Include machine-readable cataloging (MARC) catalog readability	1	0.3
Just be more creative	1	0.3
I don't know	<u>16</u>	<u>4.0</u>
	400	100.0

23. As part of the collateral material, there is a Destination Tomorrow™ web site with links to various other information sources. You may have visited the web site when you registered to begin receiving the shows. Do you recall visiting the web site?

<u>Web Site Visit</u>	<u>Number</u>	<u>Percentage</u>
Yes	151	37.8
No	<u>249</u>	<u>62.3</u>
	400	100.0

24. (Of those who visited the web site...) Do you think the Destination Tomorrow™ web site is fine as is or in need of improvement?

<u>Quality of Web Site</u>	<u>Number</u>	<u>Percentage</u>
Fine as is	136	90.1
In need of improvement	<u>15</u>	<u>9.9</u>
	151	100.0

NOTE: Two hundred forty-nine people are not included in this table because they said they didn't visit the web site.

25. (Of those who visited the web site...) How could the web site be improved?

<u>Improvement of Web Site</u>	<u>Number</u>	<u>Percentage</u>
It is fine as is	136	90.1
It is hard to find a link to the actual videos	2	1.3
Add some interactivity	2	1.3
It is hard to navigate	2	1.3
I want access through the Web to all shows	1	0.7
I need information on the shipping schedule and getting back tapes	1	0.7
I need a transcript of each show on the Web	1	0.7
Stream video clips	1	0.7
Add more detail about each show	1	0.7
Add links to other NASA sites	1	0.7
The sound levels went too loud	1	0.7
Please spell "New Hampshire" correctly	1	0.7
You did not send e-mail to acknowledge when I registered	<u>1</u>	0.7
	151	

NOTE: Two hundred forty-nine people are not included in this table because they said they didn't visit the web site.

26. Do you personally make the decisions about which programs you will include in your programming lineup?

<u>Program Decisions</u>	<u>Number</u>	<u>Percentage</u>
Yes	347	86.8
No	<u>53</u>	<u>13.3</u>
	400	100.0

Appendix A

Appendix A contains the telephone protocol that was used for NASA's Destination Tomorrow™.

Ask to speak with Program Manager/name on list (If none, ask for Station Manager).

Hello, I'm _____ with Continental Research, and we've been asked to conduct a follow-up survey about NASA Langley Research Center's program, Destination Tomorrow™. Your station registered to receive this show. May I ask you a few questions?

Survey Questions

1. In the year 2001, there were five different Destination Tomorrow™ shows that were made available to participating stations. Do you think you received all five shows?

1- Yes (Skip to Q3) 2- No

2. How many did you receive?

_____ Shows received (If zero, Skip to Q11)

3. When did you receive the first 2001 show? (What month in 2001?)

01- Jan 02- Feb 03- Mar 04- Apr 05- May 06- June
07- July 08- Aug 09- Sept 10- Oct 11- Nov 12- Dec

4. Of the five possible shows, how many were aired on your station(s)?

_____ Shows aired (If zero, skip to Q11)

5. Approximately how many times did the first show air on your station in 2001? _____ 1st
(If no others, skip to Q10)

6. Approximately how many times did the second show air on your station in 2001? _____ 2nd
(If no others, skip to Q10)

7. Approximately how many times did the third show air on your station in 2001? _____ 3rd
(If no others, skip to Q10)

8. Approximately how many times did the fourth show air on your station in 2001? _____ 4th
(If no others, skip to Q10)

9. Approximately how many times did the fifth show air on your station in 2001? _____ 5th
(If no others, skip to Q10)

10. Were the Destination Tomorrow™ shows generally aired in the morning, afternoon, evening, at night, or some combination of times?

- Morning Afternoon Evening Night

(Check all that are mentioned)

11. What is the *single* most important thing that affects your decision to select a program to air on your station?

12. From a programming standpoint, what appeals to you most about the Destination Tomorrow™ shows?

13. Compared to other educational programming your station uses, is the quality of the Destination Tomorrow™ series:

- 1- Better than average
2- About average
3- Worse than average

14. One goal of this show is to educate people about what NASA does. Do you think these shows have been successful in that regard?

- 1- Yes 2- No

15. Have the Destination Tomorrow™ shows been

- 1- Very well received
2- Somewhat well received
3- Not well received by your audience
4- Don't know

16. In your opinion, is the information provided by NASA Langley in the Destination Tomorrow™ shows

- 1- Very credible
2- Somewhat credible
3- Not credible

17. Have you personally watched all (or part) of any of the NASA Langley Destination Tomorrow™ shows?

1- Yes 2- No (Go to Q21)

18. How many of the five shows produced in 2001 might you have seen, at least in part?

_____ Shows viewed in 2001 [Maximum = 5]

19. In your opinion, have the Destination Tomorrow™ shows been

- 1- Very interesting
- 2- Somewhat interesting
- 3- Not interesting

20. In your opinion, have the Destination Tomorrow™ shows been

- 1- Very educational
- 2- Somewhat educational
- 3- Not educational

21. Is there anything NASA Langley should do to make the programs more useful to you?

22. As part of the collateral material, there is a Destination Tomorrow™ web site with links to various other information sources. You may have visited the web site when you registered to begin receiving the shows. Do you recall visiting the web site?

1- Yes 2- No/Didn't (Skip to Q25)

23. Do you think the web site is

- 1- Fine as is (Skip to Q25)
- 2- In need of improvement?

24. How could the web site be improved?

25. Do you personally make the decisions about which shows you will include in your programming lineup?

1- Yes 2- No

26. How many years have you been working at this cable TV station? _____ Years

27. What is your job title at the station?

_____ Job Title

Record

Gender: 1- Male 2- Female

State: _____

Station Type: 1- Access 2- PBS

Tape Format: 1- VHS 2- SVHS 3- Beta 4- 3/4 inch

Total Audience Size: _____

Target Audience Size: _____

Time Zone: 1- Eastern 2- Central 3- Mountain 4- Pacific 5- Out of Country

Appendix B

Demographics

1. How many years have you been working at this cable TV station? (Data grouped for presentation purposes.)

<u>Years at Cable TV Station*</u>	<u>Number</u>	<u>Percentage</u>
1	49	12.3
2	54	13.5
3	60	15.0
4	24	6.0
5	31	7.8
6 to 10	91	22.8
11 to 15	57	14.3
16 or more	<u>34</u>	8.5
	400	

Averages*

Mean = 6.93 years at station

Median = 5.00 years at station

*Based on nongrouped data.

2. What is the job title for your position at the station?*

<u>Job Title*</u>	<u>Number</u>	<u>Percentage</u>
Management	142	35.5
Production	183	45.8
Marketing/Outreach	32	8.0
Operations	<u>43</u>	10.8
	400	

*The clients grouped the various job titles into these categories.

3. Gender of Respondent

	<u>Number</u>	<u>Percentage</u>
Male	255	63.8
Female	<u>145</u>	36.3
	400	

4. TV Station Locations*

<u>State</u>	<u>Number</u>	<u>Percentage</u>
Alabama	1	0.3
Alaska	1	0.3
Arizona	10	2.5
Arkansas	4	1.0
California	43	10.8
Colorado	9	2.3
Connecticut	8	2.0
Delaware	1	0.3
District of Columbia	3	0.8
Florida	21	5.3
Georgia	8	2.0
Idaho	2	0.5
Illinois	12	3.0
Indiana	7	1.8
Iowa	7	1.8
Kansas	1	0.3
Kentucky	6	1.5
Maine	9	2.3
Maryland	9	2.3
Massachusetts	47	11.8
Michigan	26	6.5
Minnesota	15	3.8
Mississippi	2	0.5
Missouri	6	1.5
Montana	2	0.5
Nevada	5	1.3
New Hampshire	5	1.3
New Jersey	4	1.0
New Mexico	4	1.0
New York	22	5.5
North Carolina	7	1.8
North Dakota	1	0.3
Ohio	25	6.3
Oklahoma	2	0.5
Oregon	3	0.8
Pennsylvania	4	1.0
South Carolina	1	0.3
Tennessee	5	1.3
Texas	11	2.8
Utah	2	0.5
Vermont	5	1.3
Virginia	7	1.8
Washington	7	1.8
Wisconsin	16	4.0
Wyoming	2	0.5
Out of Country	2	0.5

*From internal records.

<u>Type of Station*</u>	<u>Number</u>	<u>Percentage</u>
Public Access	378	94.5
Public Broadcasting	<u>22</u>	<u>5.5</u>
	400	100.0

*From internal records.

5. Tape Format Requested*

<u>Tapes</u>	<u>Number</u>	<u>Percentage</u>
VHS	56	14.0
SVHS	285	71.3
Beta	52	13.0
3/4 inch	<u>7</u>	1.8
	400	

*From internal records.

6. Total Audience Size* (Data grouped for presentation purposes.)

<u>Viewers</u>	<u>Number</u>	<u>Percentage</u>
1-5,999	27	6.8
6,000-9,999	26	6.5
10,000-19,999	54	13.5
20,000-29,999	39	9.8
30,000-39,999	29	7.3
40,000-49,999	26	6.5
50,000-59,999	19	4.8
60,000-79,999	37	9.3
80,000-99,999	19	4.8
100,000-119,999	18	4.5
120,000-139,999	10	2.5
140,000-159,999	11	2.8
160,000-179,999	5	1.3
180,000-199,999	2	0.5
200,000-499,999	44	11.0
500,000-999,999	19	4.8
1,000,000 or more	<u>15</u>	<u>3.8</u>
	400	100.0

Averages†

Mean = 165,697

Median = 47,500

*From internal records.

†Based on nongrouped data.

7. Target Audience Size* (Data grouped for presentation purposes.)

<u>Viewers</u>	<u>Number</u>	<u>Percentage</u>
Zero	3	0.8
1-5,999	43	10.8
6,000-9,999	27	6.8
10,000-19,999	63	15.8
20,000-29,999	49	12.3
30,000-39,999	33	8.3
40,000-49,999	18	4.5
50,000-59,999	15	3.8
60,000-79,999	33	8.3
80,000-99,999	17	4.3
100,000-119,999	17	4.3
120,000-139,999	8	2.0
140,000-159,999	7	1.8
160,000-179,999	4	1.0
180,000-199,999	3	0.8
200,000-499,999	36	9.0
500,000-999,999	14	3.5
1,000,000 or more	<u>10</u>	2.5
	400	

Averages†

Mean = 142,598

Median = 33,075

*From internal records.

†Based on nongrouped data.

8. Location of TV Station (Based on Time Zone)*

<u>Time Zone</u>	<u>Number</u>	<u>Percentage</u>
Eastern	224	56.0
Central	84	21.0
Mountain	31	7.8
Pacific	59	14.8
Other Countries	<u>2</u>	0.5
	400	

*This table was computer generated.

Survey Information Summary

Formative and summative evaluations are critical to every program's success, and NASA's Destination Tomorrow™ is no exception. Destination Tomorrow™ is designed to enhance scientific and technological literacy. One way to gauge its effectiveness is to determine, either from users or through intermediaries (i.e., television station managers), the effectiveness of the series. Evaluation is important for several reasons and plays an important role in the evolution of distance learning (Hawkes, 1996). First, evaluation improves a program's credibility and validity (Wade, 1996). Second, evaluation can be used as the basis for making changes to a program (Ramirez, 1999). Third, evaluation can help determine the effectiveness of a program (Hazari and Schnorr, 1999). According to Hawkes (1996), using an array of evaluation techniques and including everyone involved in the delivery of distance learning programming should produce results that are credible, valid, and effective in terms of learning goals and measurable outcomes.

Concluding Remarks

The development of NASA's Destination Tomorrow™ is based on theory, principles, and educational research as they apply to how adults learn and apply knowledge. The five programs in the 2000–2001 season were produced in English and dubbed in Spanish. In January 2002, 400 telephone interviews were conducted with managers of cable access television stations to determine (1) information about the programs, including the number of times the programs aired and (2) information regarding the quality of the programs, including how NASA's Destination Tomorrow™ compared to other (similar) educational programming. Continental Research Associates, a Norfolk, Virginia-based marketing research firm, conducted the interviews. About 64 percent of the managers who were interviewed were male, slightly more than 50 percent of the stations were located in the eastern United States, and the average (mean) audience size of those stations included in the survey was 165,697. Regarding NASA's Destination Tomorrow™, interviewees reported that (1) from a programming standpoint, the most appealing aspects of the series are its production quality and educational value, (2) programs in the series are "better than average" when compared to other educational programming, (3) the programs are very credible, (4) the programs are successful in educating people about what NASA does, and (5) the programs have been "very well received" by their audiences.

Bibliography

- Hawkes, M. L.: Evaluating School-Based Distance Learning Programs: Some Thoughts About Methods, *Bulletin*, Oct. 1996.
- Hazari, S.; and Schnorr, D.: Leveraging Student Feedback To Improve Teaching in Web-Based Courses: Internet/WEB/Outline Service Information. *THE Journal, Technological Horizons in Education*, vol. 26, no. 11, June 1, 1999, p. 30.
- Ramirez, A.: Assessment-Driven Reform: The Emperor Still Has No Clothes, *Phi Delta Kappan*, vol. 81, no. 3, 1999, p. 204.
- Wade, W.: What Do Students Know and How Do We Know That They Know It? *THE Journal, Technological Horizons in Education*, vol. 27, no. 3, Oct. 1, 2000, p. 94.

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188		
<small>The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.</small>					
1. REPORT DATE (DD-MM-YYYY) 11-2002		2. REPORT TYPE Technical Memorandum		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE Evaluating the Effectiveness of NASA's Destination Tomorrow™ 2000-2001 Program			5a. CONTRACT NUMBER		
			5b. GRANT NUMBER		
			5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S) Pinelli, Thomas E.; and Perry, Jeannine			5d. PROJECT NUMBER		
			5e. TASK NUMBER		
			5f. WORK UNIT NUMBER 722-90-57		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) NASA Langley Research Center Hampton, VA 23681-2199			8. PERFORMING ORGANIZATION REPORT NUMBER L-18198		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) National Aeronautics and Space Administration Washington, DC 20546-0001			10. SPONSOR/MONITOR'S ACRONYM(S) NASA		
			11. SPONSOR/MONITOR'S REPORT NUMBER(S) NASA/TM-2002-211955		
12. DISTRIBUTION/AVAILABILITY STATEMENT Unclassified - Unlimited Subject Category 82 Availability: NASA CASI (301) 621-0390 Distribution: Nonstandard					
13. SUPPLEMENTARY NOTES Pinelli, NASA Langley Research Center. Perry, Continental Research, Norfolk, VA. An electronic version can be found at http://techreports.larc.nasa.gov/ltrs/ or http://techreports.larc.nasa.gov/cgi-bin/NTRS					
14. ABSTRACT NASA's Destination Tomorrow™ series consists of 30-minute educational television programs that focus on NASA research, past, present, and future and are designed for educators, parents, and adult (lifelong) learners. Programs in this award-winning series follow a magazine style format with segments ranging from 3-5 minutes to 6-8 minutes. An associated web site provides summaries of stories and links to related program material. The development of the programs is based on educational theory, principles, and research as they pertain to how adults learn and apply knowledge. The five programs in the 2000-2001 season were produced in English and dubbed in Spanish. Telephone interviews with managers of cable access television stations were conducted in January 2002. NASA's Destination Tomorrow™ interviewees reported that (1) from a programming standpoint, the most appealing aspects of the series are its production quality and educational value, (2) programs in the series are "better than average" when compared to other education programming, (3) the programs are very credible, (4) the programs are successful in educating people about what NASA does, and (5) the programs have been "very well received" by their audiences.					
15. SUBJECT TERMS Distance learning; Program assessment; NASA educational programs; Mail survey; NASA's Destination Tomorrow™					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			STI Help Desk (email: help@sti.nasa.gov)
U	U	U	UU	29	19b. TELEPHONE NUMBER (Include area code) (301) 621-0390